The RUBBER AGE

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LATE NEWS of the Industry

Rubber Manufacturers Association Holds Banquet and Elects 1933 Officers

F. B. Davis, Jr., Elected President—Dinner at the Waldorf-Astoria Follows Routine Business Meeting—Rubber Consumption Lowest Since 1921

AT THE annual meeting of the Rubber Manufacturers' Association held January 9, at the Waldorf-Astoria Hotel, New York City, F. B. Davis, Jr., president of the United States Rubber Company, was elected president of the Association, succeeding J. D. Tew, president of the B. F. Goodrich Company. W. H. Lalley, president of the Kelly-Springfield Tire Company, was elected first vice-president, and George B. Dryden, president of the Dryden Rubber Company, was elected second vice-president.

R. H. Goebel was elected secretary; H. B. Delapierre re-elected as treasurer, and W. H. Blackwell re-elected as assistant treasurer.

The executive committee for 1933 is as follows: F. B. Davis, Jr., of United States Rubber Co., W. H. Lalley of Kelly-Springfield Tire Co., George B. Dryden of Dryden Rubber Co., C. Slusser of Goodyear Tire & Rubber Co., A. F. Townsend of Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., and J. D. Tew of B. F. Goodrich Co.

Assistant secretaries re-elected for 1933 are George Flint, A. C. Grimley and C. W. Halligan. A. L. Viles, general manager for many years, continues in that capacity.

T. W. Miller, president of the Faultless Rubber Co., was elected a member of the board of directors to fill the unexpired term of E. H. Broadwell, resigned. The other directors are as follows: George B. Dryden, E. B. Germain of Dunlop Tire & Rubber Corp., A. B. Newhall of Hood Rubber Products Co., William O'Neil of General Tire & Rubber Co., J. D. Tew, E. S. Boyer of American Hard Rubber Co., Herbert E. Smith of United States Rubber Co., C. Slusser of Goodyear Tire & Rubber Co., W. S. Wolfe of Seiberling Rubber Co., F. B. Davis, Jr., C. D. Garretson of Electric Hose & Rubber Co., J. A. Lambert of Acme Rubber Mfg. Co., A. F. Townsend of Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., and W. H. Lalley.

Rubber industry troubles were not in evidence at the annual session, where routine business only was transacted, nor at the dinner following when more than 400 members and guests heard Dr. Benjamin M. Anderson, Jr., economist of the Chase National Bank of New York.

Twenty-one industrial leaders who were seated at the speakers' table were guests of honor of the association at the dinner and attended a reception in the Carpenter suite of the hotel preceding the dinner.

Master Reports in Firestone-United States Rubber Patent Suit

C. D. FRIEBOLIN, special master for the United States District Court at Cleveland, has reported in favor of the Firestone Tire and Rubber Company, with

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Publishers Announcement

EFFECTIVE February 1, THE RUBBER AGE will consolidate its customary two semi-monthly issues into a single enlarged issue to be published on the 15th of each month. The next issue accordingly will appear on February 15 and will be dated February, 1933. Coincident with this change in publication date, various improvements will be made in format and contents in an endeavor to furnish our readers throughout the world a still more useful and interesting publication. All of the features which have contributed to the popularity of THE RUBBER AGE in the past will be continued in the new monthly issues.

important exceptions, in the patent suit brought by the United States Rubber Company on eight patents with claims of infringement of 84 claims. The master's report was to have been submitted to the District Court at Cleveland, January 7.

The suit involved patents covering the use of modern processes of tire building. These patents were held by the United States Rubber Company, and royalties have been paid for years to the latter company by all tire manufacturers except Firestone.

The royalties paid by the larger companies are 1 cent per tire on sizes up to and including the 5¼ inch size, and 2 cents on all the larger sizes. The smaller companies paid twice those rates. Exceptions to the report will undoubtedly be filed with the Court.

Crude Rubber Consumption in December is Lowest Since 1921—Stocks on Hand Increase

CONSUMPTION of crude rubber by manufacturers in the United States for the month of December, 1932, amounted to 16,990 long tons. This is the lowest consumption figure since January, 1922. The figure compares with 21,910 long tons for November, 1932, and represents a decrease of 22.5 per cent, according to statistics released by The Rubber Manufacturers' Association. Consumption for December, 1931, was reported to be 21,409 long tons. Consumption for the year 1932 amounted to 313,122 long tons as compared with 348,986 long tons in 1931.

The Association reports imports of crude rubber for the month of December, 1932, to be 28,567 long tons, an increase of 5.5 per cent above November, 1932, although 45.0 per cent below December, 1931.

The Association also estimates total domestic stocks of crude rubber on hand December 31st at 388,229 long tons, which compares with November 30th stocks of 377,996 long tons. December stocks show an increase of 2.7 per cent as compared with November of this year, and 20.3 per cent above the stocks of December 31, 1931.

The participants in the statistical compilation, report 38,360 long tons of crude rubber afloat for the United States ports on December 31st, compared with 40,879 long tons afloat on November 30, 1932, and 40,455 long tons afloat on December 31, 1931.

Estimates of higher rubber consumption made early in 1932 failed to materialize, due to reduced automobile travel, small output of new cars and failure of the "doughnut" tire to attract general public favor.

This low-pressure, oversized tire had been expected to increase rubber consumption in the same way that the balloon tire had done. The Automobile Show this year demonstrated that great resistance had been encountered in securing its adoption.

Tire Shipments and Production Fall Off Sharply While Inventories Climb

SHIPMENTS of pneumatic casings for the month of November, 1932, amounted to 1,711,298 casings, a decrease of 4.9 per cent under October of that year, and 40.7 per cent below November, 1931, according to statistics released by The Rubber Manufacturers' Association, Inc. This organization reports production of pneumatic casings for November, 1932, to be 2,303,545 casings, a decrease of 10.3 per cent under October of that year, and 7.9 per cent below November, 1931.

Pneumatic casings in the hands of manufacturers November 30, 1932, amounted to 7,454,443 units, an increase of 8.4 per cent above October 31, 1932, stocks, but were 5.9 per cent under November 30, 1931.

Te actual figures are as follows:

Pneumatic Casings

	Shipments	*Production*	*Inventory*
November, 1932	1,711,298	2,303,545	7,454,443
October, 1932	1,799,136	2,568,641	6,875,980
November, 1931	2,887,464	2,500,788	7,919,034

Foreign Rubber Consumption in 1932 Exceeds U. S. Demand for First Time

WORLD crude rubber absorption totaled 660,000 tons in 1932, compared with about 673,000 tons in 1931, the Commerce Department estimates.

United States absorption in 1932 was 320,000 tons, compared with 350,000 in 1931. Foreign absorption totaled 340,000 tons, against 323,000 the year before. This was the first time since the beginning of the World War that foreign absorption surpassed that of the United States.

Some of the important factors, according to the department, making for the greater use of rubber in foreign countries than in the United States are the development of United States branch factories, particularly in Canada and Britain, the extension of road building in foreign countries and the increase in automotive registration arising therefrom the industrialization of Russia and the increased production of rubber footwear and rubber specialties in Czechoslovakia and Japan.

Commodity Exchange to Vote on Merger—Favorable Action Expected

MEMBERS of the four New York exchanges which plan to consolidate into Commodities Exchange, Inc., will formally vote on the merger during the second week in February. If the members of each exchange vote approval, as anticipated, this will make the consolidation effective.

The first ballot will be taken by members of the New York Hide Exchange on February 6; the National Metal Exchange will vote the following day, the Rubber Exchange of New York on Feb. 8 and the National Raw Silk Exchange on Feb. 9.

The boards of governors of all the exchanges, which have a combined membership of close to 1,000, have already approved the consolidation and members of each exchange, at special meetings, have evinced an overwhelming sentiment for the merger.

Because of the large out-of-town and foreign memberships of each exchange a proxy committee has been appointed to help insure all members having an opportunity to vote on the consolidation. The members of this committee are:

Harold L. Bache of J. S. Bache and Company; William E. Bruyn of Littlejohn and Company, Inc.; J. Chester Cuppia of E. A. Pierce and Company; Paolino Gerli of E. Gerli and Company, Inc.; Addison B. Hall of National Lead Company; John L. Julian of Fenner, Beane & Ungerleider; Floyd Y. Keeler of Orvis Brothers and Company; Jerome Lewine of H. Hentz and Company; Edward L. McKendrew of Armand Schmoll, Inc.; Charles Muller; Ivan Reitler of Federated Metals Corporation; Armand Schmoll, Jr., of Schmoll Fils Associated, Inc.; Charles Slaughter of Slaughter, Horne and Company, and Martin H. Wehncke of Brandeis, Goldschmidt and Company.

When the consolidation is approved by members of the four exchanges, the members will automatically become members of Commodities Exchange Inc. Each ex-

change, however, will continue to function as a separate organization until such time as the mechanical consolidation into a single operating unit under one roof and on one floor is completed. It is expected that this can be accomplished in time to have the new exchange formally opened by May 1.

The new exchange, by virtue of the basic importance of the six commodities which will be traded in—rubber, silk, hides, silver, tin and copper—holds promise of becoming one of the foremost commodity markets in the world.

"With trading in six commodities on one floor, each commodity will become, in a sense, a part of a large market instead of constituting the whole of a small market," a spokesman for the exchange explained. "With all demand and supply for futures contracts in six commodities of world importance centering on one floor, it should be possible to enlarge the volume of trading in average normal times to a point materially greater than that of the combined operations of the exchanges operated independently as now."

The contracts now traded in on the four exchanges represent a value in excess of a billion dollars annually.

General Tire Show $202,353 Profit After Inventory Charge-Offs

FOR fiscal year ended November 30, 1932, General Tire and Rubber Company reports a profit of $1,075,546 after taxes, depreciation and interest, but before inventory adjustments, comparing with profit of $262,503 in preceding year. After provision for reduction of inventory and commitments in raw materials to market prices at the year's end, net profit was $202,353 as compared with net loss of $444,063 in previous year. Out of the net profit, $117,091 was paid out in common and preferred dividends in 1932.

The company has no bonded indebtedness and the amount of preferred stock outstanding was reduced during 1932 from $3,228,200 to $3,161,500. Notes payable to banks were reduced from $1,000,000 to $350,000.

Sales for the past year amounted to $16,679,000 which compare with $20,882,000 in preceding year. This reduction was due largely to lower prevailing prices for merchandise.

At the close of the fiscal year, earned surplus stood at $3,329,410 comparing with $3,228,246 at the end of previous year. The company's balance of cash on hand or in banks was about twice as much as it owed. Ratio of current assets to current liabilities was increased from five to one in 1931, to more than seven to one in 1932.

At the annual meeting of stockholders of General Tire and Rubber Company, directors were re-elected. At the subsequent meeting of directors, officers were re-elected.

Lee Shows Net Profit of $150,000 During Last Fiscal Year—Bank Debt Paid

THE treasurer's report of the Lee Rubber & Tire Corporation given below, shows the financial condition of the company at the close of business October 31, 1932, and the result of operations for the year ended that date. During the year the company has paid off its bank debt.

The treasurer's report shows the strong financial condition of the company, cash on deposit being in excess of twice the amount of the company's current liabilities, and its total current assets are equal to over $14.00 for each $1.00 of current liabilities outstanding.

Inventories of both raw materials and finished goods have been taken at cost or market whichever was lower, and the company has substantial quantities of rubber on hand and on contract at favorable prices, which were at or below the market prices prevailing October 31, 1932.

During the year the directors authorized a purchase out of surplus funds of 25,700 shares of capital stock of the company, which, added to the 1,035 shares already owned, makes 26,735 shares owned as of October 31, 1932, at a cost price of $63,290.00.

The selling price of tires still remains very low, as does also the price of mechanical goods. The company, however, is well protected on low cost inventories and raw materials, and, with its strong financial position, having no mortgages and no bank debts, should be able to hold its position in the industry.

Net profits for the year, after all reserves, are $150,032.15. Plants have been maintained in good condition, $129,654.54 having been spent on maintenance and repairs, which amount has been charged to operations, this in addition to the regular charges for depreciation.

Consolidated Profit and Loss and Surplus Accounts For the Year Ended October 31, 1932

Net Sales after all Discounts and Allowances			$6,411,099.26
Cost of Goods Sold, including Freight, Selling Expenses, Administration Expenses and General Expenses, Depreciation, Inventory Adjustments and Reserves			6,283,942.57
Operating Profit			$127,156.69
Miscellaneous Income:			
Interest Earned		$11,477.30	
Profit on Sale of Sundry Merchandise		25,960.14	
Miscellaneous		17,136.68	
		$54,574.12	
Less Miscellaneous Charges:			
Interest Paid	$28,303.20		
Miscellaneous	3,395.46	31,698.66	
Miscellaneous Income (Net)			22,875.46
Net Income			$150,032.15
Surplus as at October 31, 1931			$486,660.22
Deduct: Loss on Sale of Capital Assets			7,869.52
			$478,790.70
Add: Net Income for the Year Ended October 31, 1932			150,032.15
Surplus as at October 31, 1932			$628,822.85

India Rubber Announces Profits Reaching $296,834 for the Last Year

INDIA Tire & Rubber Company management recently announced an operating profit of $296,834.97 to stockholders for the fiscal year ended October 31, 1932, the year in which the company instituted the six-hour day throughout its factory and restored a 20 per cent salary cut to employes. Announcement was made at an adjourned session of the stockholders, which also re-elected all directors of the company.

The operating profit was reduced to a net balance sheet loss of $96,332, the company's annual statement showed, when liberal allowances were made for depreciation, and deductions taken for Federal excise tax reimbursement of reserves, and miscellaneous charges.

W. G. Klauss, president, told stockholders that more than $70,000 had been charged off to depreciation; that inventories both of finished goods and raw materials, had been written down to the market, and that payments on the new Federal rubber excise tax, which the company absorbed for a period of some three months, aggregated $33,203.

Mr. Klauss also announced the inauguration of a new

line of India tires designed to meet mail-order house competition.

"The new line, a first line tire in every respect," he said, "will be complete in all sizes. It will be known as the 'India Regular.' It will sell at prices that compete with mail-order lines."

Discussing the business of the past year, Mr. Klauss called the stockholder's attention to the fact that India has paid off all of its direct bank borrowings in full and closed the year in a very strong financial position, improving its current ratio until at the present time it stands at 3.7 to 1 in spite of the worst year in the history of the rubber industry.

"India has advance commitments covering its entire 1933 crude rubber needs at prices below the market," he said. "Its advance commitments on cotton are also long and below the market level.

"During 1932 the company increased the number of its contract dealers by 15 per cent. It had gross sales which ran in excess of those of the boom years.

"It began the year 'stripped for action' with a 20 per cent salary reduction in effect for employes. A provision of the cut was that it was to be restored if business justified it.

"During the year the company not only restored the 20 per cent cut, retroactive to January 1, but put its entire factory on a four-shift basis, employing every able-bodied, jobless man in the Mogadore district. For a large part of the year the plant operated seven days a week for all employes. It cooperated extensively in the 'Share the Work' movment until all its old employes, and many other besides, had at least some work."

Mr. Klauss, in discussing the coming year, called the stockholder's attention to excellent position of the inventories, with rubber and fabric being committed in advance at a figure below market; the increase in the number of Independent dealers, and the large quantity of business involved in the contracts for the coming year.

India Tire & Rubber Co.
Balance Sheet

Current		
Cash on Hand and Deposit		$73,594.77
Foreign Drafts, Notes, Trade Acceptances	$201,660.87	
Accounts Receivable	782,831.16	
	984,492.03	
Less: Reserve for Freight, Discount, Doubtful Accounts, etc.	102,619.70	881,872.33
Inventories		
Finished, in Process and Raw Materials		504,526.59
Total		$1,459,993.69
Other Assets		
Miscellaneous Investm'ts, Accts., Notes, Advances, etc.		190,480.83
Permanent		
Land, Bldgs., Machinery & Equipment	$1,467,145.80	
Less Reserve	582,272.01	884,873.79
Deferred Assets		67,047.42
Total		$2,602,395.73
LIABILITIES		
Current		
Acceptances Payable		242,088.36
Accounts Payable		120,167.86
Accrued Items		33,213.04
Total		395,469.26
Gold Notes Serial 6½%		800,000.00
Capital Stock		
Preferred 7% Cum.		489,578.00
Common No Par		917,348.47
Total		$2,602,395.73
Customers Trade Acceptances Discounted		$376,833.61

He stated further, that expenses had been reduced to a minimum and coupled with the superiority of the product he felt certain that 1933, no matter what the business conditions, would enable India to show an even better statement.

During the year Col. Frank A. Scott, prominent in Cleveland financial circles, was made Chairman of the Board of Directors.

Directors are: W. G. Klauss, Philip R. Mather, member of the firm of Pickands-Mather; Florian J. Andre, president of the Telling Belle Vernon Co., a division of the National Dairies Company; George W. Merz, vice-president of the First-Central Trust Company, Akron; T. E. Borton, partner in the firm of Borton & Borton, Cleveland; J. M. Alderfer; and Frank A. Scott, chairman of the board.

Chicago Rubber Group Goes on Air at Meeting

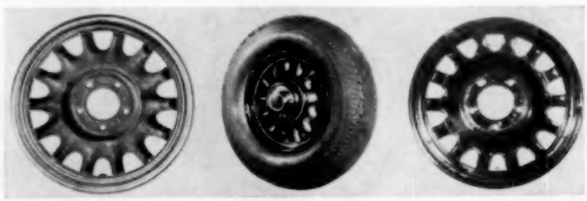
THE Chicago Rubber Group meeting held on Friday evening, January 13th, in the College Inn of the Hotel Sherman, Chicago, was broadcast throughout the Middle West. The Ben Bernie Orchestra and "the old maestro" himself provided the musical entertainment during the dinner. The College Inn was reserved for the members of the Chicago Rubber Group and an excellent dinner was served between the entertainment features.

After the dinner, the members adjourned to the Crystal Ballroom where the technical part of the program was held. The first speaker, Harlan Depew of the American Zinc Sales Company, gave an illustrated talk on "Zinc Oxide, its properties in rubber and methods of manufacture." Mr. Depew first described the American process and the French process for the manufacture of zinc oxide. He then described the physical characteristics of each type of zinc oxide, explaining their advantages and disadvantages. He closed his talk with some views showing, first, a diagrammatic layout of a zinc oxide plant, and then actual photographs taken of their plant showing the various buildings in which the processes are carried out.

The second feature on the program was a movie travelogue entitled "See 'Em Alive in the Wilds of Africa." Mr. Eastman Dryden of Commercial Printing Machine, Inc., thrilled the members with his moving picture travelogue into the wilds of Africa. We were first treated to scenes showing the various types of wild animals running wild in the underbrush and in the open. We were shown lions having their afternoon tea on the carcass of a zebra. These pictures were taken twenty feet away from the lions.

New Artillery Auto Wheels

ALMOST over night and without any public announcement whatever, the fashion in automobile wheels has undergone the most complete change of the past ten



years through the adoption by at least seven of the manufacturers displaying cars at the automobile shows of an entirely new type of steel artillery wheel designed and manufactured by the Budd Wheel Company, of Philadelphia and Detroit.

Filling in the Blind Spots in the RUBBER INDUSTRY'S *Statistical Background*

By E. G. HOLT
Chief, Rubber Division, Department of Commerce

SERVICES available to the public in general, and to the rubber industry in particular, through government offices are seldom clearly understood, and usually those interested in securing essential information have no idea whom to address. This is part of the *raison d'etre* for certain private organizations in Washington which cater to the needs of the public for information readily procurable free of charge or at a nominal cost direct from the government, the data being compiled by Congressional requirement or authorization. The purpose of this article is to point out certain sources for information on the rubber industry and thus indicate how these government services supplement private agencies in filling up blind spots in the statistical background of industry.

Statistical Services

Among the first requests received by the Rubber Division of the Bureau of Foreign and Domestic Commerce, after its organization at the pit of the depression in 1921, was one asking for information on rubber production and consumption the world over. The information furnished the inquirer was incomplete, unofficial, second-hand data from a London statistical report. Today we receive such inquiries frequently and in reply furnish data compiled locally from official sources or reported by foreign offices of the Bureau, covering world rubber production, world rubber absorption and principal world stocks. We are able to vouch for the accuracy of these reports and the rubber trade now has a reliable, impartial, and official source of information regarding this subject of prime importance to an industry entirely dependent on foreign sources for its supplies of an essential raw material. This service has been developed gradually over a period of years. It embodies the accumulated experience of the past decade in the study of statistics relating to crude rubber, and in its inclusion of officially estimated stocks of rubber on hand in the United States, and calculated estimates of stocks afloat for the United States and for Europe, it covers a field in which the Rubber Division has done much in the way of original research. These statistics are available to all domestic firms who subscribe to the *Crude Rubber News Letter,* a periodical bulletin containing news items of interest to the crude rubber trade; the subscription price for this service is at present one dollar annually. Through this service, American firms are able to secure unbiased monthly statements regarding foreign rubber absorption and principal world stocks of rubber, and this information is currently used in many of the circulars and publications issued by private firms.

Foreign Trade Statistics

At the time the Rubber Division was organized, American exporters of rubber products were guided very largely by their own company records in estimating the trend of export trade in particular classes of goods. Annual reports of exports, by countries, were published, but were too delayed in publication to be of current value, and the official *Monthly Summary of Foreign Trade,* while reporting total exports of each class of goods, contained very little information as to destinations of exports. This obscure condition as regards export trends was promptly remedied by the preparation and issuance of monthly statistical statements, showing destinations of exports of each class of rubber goods in detail, an innovation which was warmly commended by the trade. As time passed, the needs of exporters resulted in greater sub-division of classes of products, so that they can now secure definite information on the trend of exports of thirty-two different classes of rubber goods, against only fourteen in 1921. The service is therefore now directly useful to a much larger proportion of the industry, and reduces the uncertainties of a much greater number of export managers, than in 1922. The Division is likewise responsive to industry requirements for more detailed information regarding recently increased imports of such rubber products as rubber footwear and rubber balls and has in several instances made special provision for reporting such imports. At present, statistical statements issued by the Division comprise the following:

Title

U. S. Exports of Scrap and Reclaimed Rubber, and Rubber Thread.
U. S. Exports of Rubberized Piece Goods and Waterproof Garments.
U. S. Exports and Imports of Rubber Footwear.
U. S. Exports of Rubber Sundries and Specialties.
U. S. Exports and Imports of Hard Rubber Goods.
U. S. Exports of Rubber Tires and Repair Materials.
U. S. Exports of Mechanical Rubber Goods.
U. S. Imports and Re-exports of Rubber and Related Gums.
U. S. Imports of Rubber Products Other Than Footwear and Hard Rubber Goods.

Each one of these statements is issued subject to the nominal annual subscription price of $1.00 for 1933. In addition, a summary statement, covering total exports and imports of each class of rubber goods for the month and year-to-date, by quantity and value, is issued for the use of executives who desire a comprehensive monthly statement of our foreign trade in rubber products, but who are not interested in details. This statement also is issued subject to a charge of $1.00 yearly.

Bulletins on Foreign Trade

Foreign trade in rubber goods is as competitive, from an international viewpoint, as any branch of foreign trade. Manufacturers in Canada, France, England, Italy, Japan, Germany, Belgium, and other countries on a less important scale, vie with American firms and one another for the trade of the countries where rubber products are not manufactured. Items of news regarding the competitive situation in foreign markets, gleaned from official trade statistics published by foreign governments and from written reports sent in by our field investigators (trade commis-

sioners and commercial attaches), are brought to the trade through a series of special circulars.

The *Tire Exporters News Letter* is issued semi-monthly; the *Rubber Footwear and Clothing News Letter,* the *Mechanical Rubber Goods News Letter,* and the *Rubber Sundries and Specialties News Letter* are each issued once a month. Supplementing these services are statistical statements (issued periodically) which report the exports of tires and rubber footwear (and occasionally other items) from foreign countries which are important international competitors in the particular lines of trade.

Each of these services is subject to an annual subscription charge of $1.00, and we have it on the authority of several companies of leading importance in the exportation from this country of various classes of rubber goods that their intelligent operation would be practically impossible without the assistance of our series of statistical and other reports. It is true, of course, that under the shadow of overwhelming political and financial questions which dominate international trade at present, the helps are less effective than in ordinary times, but it is also true that without them uncertainty and confusion would be ten times worse confounded. Trade is still moving even if at a greatly reduced tempo, and the firms which are today maintaining steady contact with export clients are building soundly for a future improved position in international trade, than which any other export policy would be one of absolute hopelessness. These international transactions continue to hold out the hope of progressively improved friendly relations between the nations of the earth.

Bureau Equipped for Research

How well the Bureau of Foreign and Domestic Commerce is equipped to remove some of the blind spots in the statistical background of any industry is only in part indicated by what has been said. Possessing what is generally acknowledged to be the most complete reference library on international trade in the world, with a personnel trained to commodity statistical research, and possessing the confidence of the business public through confidential and impartial handling of domestic trade statistics by the individual commodity divisions, makes the Bureau the logical clearing house for statistical information relating to trade.

Special Trade Surveys

In addition to items already mentioned, the Rubber Division has for years conducted annual surveys of United States consumption of crude and reclaimed rubber, to aid the industry to determine more accurately the year-end position of the industry and the degree of completeness of trade associations monthly statistics, and has maintained in the hands of exporting clients a manual stating the rates of customs duty applicable to every class of rubber products when imported into any of the hundred-odd foreign markets.

To aid the industry in maintaining production (and hence employment) at a more regular level, the division has also for years conducted semi-annual surveys of dealers' stocks of rubber tires and of rubber footwear of specified classes; each of these surveys involves the speedy compilation of confidential returns sent in by 20,000 to 25,000 independent dealers, as well as consolidated reports of the stocks held by leading mass distributors—and there has never been a case where these reports were not given the strictly confidential handling requisite to continued trade and public confidence. Even the discontent with things governmental during the past year has not affected the successful conduct of these broad surveys, the major expenses of which are by special arrangement paid directly by the industry and not by the general public through taxation.

Research Investigations

The most widely-known of the special research investigations made by the Rubber Division was the world-wide survey of rubber production possibilities conducted during the early restriction years, in 1923-24. In late 1930, a statistical research investigation of the trend of renewal tire sales in the United States was published in order to throw into better relief the 1931 prospects, and at the beginning of 1932 an additional detailed statistical analysis of the domestic renewal tire market was published, the general conclusions in which were stated by various statisticians in the automotive, rubber, and advertising industries to have been distinctly helpful to them in their private researches. In May, 1932, a survey of the seasonal trends of rubber production in each of the important producing areas was published, to assist the trade in measuring more accurately the extent to which production is now being curtailed in each region.

Bureau Personnel

In order to forestall possible questions as to how many times our division personnel has been multiplied in order to enable us to conduct these varied services, I am glad to include the following statement. Six months after the Division was established, in early 1922 (before restriction added temporarily to our pay-roll), the total number in the division was seven. Today, with service better organized, but far more inclusive, the division roster includes only six names.

Other Sources for Information

The Rubber Division of the Bureau of Foreign and Domestic Commerce is only one of several government offices which issue information of interest to the rubber industry. The Census Bureau compiles and issues the production statistics on this industry in each census year. The Bureau of Labor Statistics of the Department of Labor compiles and publishes monthly data on employment and pay-rolls in the tire and rubber footwear sections of the industry. The Bureau of Standards of the Commerce Department engages in fundamental scientific research on crude rubber, and encourages standardization of products through government specifications which it establishes. The Bureau of Plant Industry of the Department of Agriculture has studied problems of rubber cultivation particularly in the Western Hemisphere, and possesses an excellent library on the many forms of plant life that produce rubber. The Bureau of Internal Revenue of the Treasury Department publishes annual reports on *Statistics of Income,* in which worthwhile information regarding the financial results of the industry are recorded. The Rubber Division is frequently in touch with these and other offices, including the Customs Bureau and the United States Tariff Commission, and frequently directs visitors and correspondents to particular government offices which have jurisdiction over special problems.

Typical Example of Bureau Service

As this article has been prepared to acquaint members of the rubber industry with the type of services available in the Bureau, the examples of services mentioned have all been Rubber Division services. These examples are, however, typical of similar services available to other industries through other commodity and technical divisions in the Bureau. Any firm which wants to know services of economic information that it needs should place request with the Bureau—instances in which letters are received from some new member of our clientele, expressing surprise and approval as a result of services rendered, still occur not infrequently, and these commendations constitute to the government worker a stimulus to renewed efforts at service.

LABOR *in the Tire Industry— Its Productivity and Employment**

A Survey of Production and Sales of Tires, Showing Yearly Percentage of Renewals — Labor Displacement and Unemployment Due to Conditions in the Industry

THE average pneumatic tire produced in 1931 is very different from the average tire produced in 1926, and the latter in turn differed greatly from the tires produced in 1922 and in 1914. Year after year changes have been made in the style, shape, size, and weight of tires and in the quantity and proportion of raw materials used in their production. No standard of measurement is available by which the output of any one plant may be expressed in terms of output of another plant or the total output of any one year expressed in terms of the total output of another year. For this reason the data on labor productivity presented in this article do not measure precisely the actual changes in the total output or in the man-hour output in manufacturing pneumatic tires. The statistics here presented are based (1) on the total number of tires produced and (2) on the combined total weight of the rubber, chemical ingredients, and fabric used in the production of tires; these bases offer the closest approximation available for the measuring of changes in labor productivity in the manufacture of pneumatic tires.

In 1931 the man-hour output in the pneumatic tire industry, measured by the weight of rubber compounded with fabric used in the production of tires, was 34.52 per cent above 1929 and 86.08 per cent above that of 1926. This remarkable increase in the productivity of labor enabled six representative tire-manufacturing plants studied by the Bureau of Labor Statistics, to produce 29.34 per cent more than in 1926, with a reduction of 30.49 per cent in the direct productive labor time. Compared with 1922, the six plants increased their output per man 171.89 per cent. This enabled them to increase their total production 119.72 per cent above that of 1922, and at the same time reduce the direct productive man-hour outlays 19.17 per cent from the 1922 level.

Increase in Man-Hour Output

Since 1914 the man-hour output of the six tire-manufacturing plants has risen 581.05 per cent. The rise was steady but comparatively slow until 1929, when the index of man-hour output, based on 1914 as 100, stood at 506.25. In 1930 it jumped to 581.03, which is an increase of nearly 75 points over 1929, and in 1931 it made even a larger jump to 681.05, registering an increase of 100 points over 1930, the largest increase of any one year in the history of the six plants.

These are some of the facts disclosed by the Bureau of Labor Statistics in its study of labor productivity and labor employment in the tire industry. The survey, now completed, covers six representative tire manufacturing plants, which in 1931 produced 59.80 per cent of the total tire output in the United States. The present article contains a brief summary of that portion of the survey dealing with productivity of labor, technological changes, and their effect on the employment situation in the tire industry. A detailed report outlining the history of tire manufacturing from 1922 to 1931, and showing the changes in the method of production, the statistics of total and man-hour output of the six representative plants, data on employment and average earnings of the wage workers, will be published later as a bulletin of the bureau.

The manufacture of tires is a comparatively new industry. The history of tire making, like that of its parent, the automotive industry, has been predominately a post-war development. In 1914 only approximately 9,000,000 pneumatic tires were produced in this country. In 1920, 33,000,000 tires were produced, and in 1928, the year of the largest tire output, the total production was approximately 78,000,000 tires. The 1931 output was 48,500,000 tires.

There are two principal sources of demand for tires in the United States—for new equipment in the automobile industry and for renewals of tires on older cars. In addition there is also a small demand for tires for export purposes. An accompanying table gives the total number of tires produced from 1913 to 1931, also the total number of tires used as new equipment and the number sold for renewal purposes from 1923 to 1931. The figures indicate that the principal source of demand for tires comes from renewal sales. The same table also contains the number of new automobiles produced and the total number of cars registered from 1913 to 1931. Division of the total number of tires used in renewal sales by the total number of registered cars gives the average number of renewal tires purchased annually for every car registered during that year.

Production and Sales of Tires, Production and Registration of Automobiles, and Number of Renewal Tires Per Car for Specified Years, 1913 to 1931

Year	Number of tires (Thousands, 000, omitted)				Number of automobiles (Thousands, 000, omitted)			Renewal tires sold per registered car	
	Produced	For new equipment	For renewals	Total sold	Produced	Registered	Total requiring tires	No.	Index (1926 = 100)
1913.....	6,600	.....	4,675	.....	485	1,258	1,743	3.72	204.40
1914.....	9,000	.....	6,725	.....	569	1,711	2,280	3.93	215.94
1919.....	32,835	.....	25,100	.....	1,934	7,565	9,499	3.31	181.87
1920.....	33,000	.....	24,000	.....	2,227	9,232	11,459	2.60	142.86
1921.....	27,298	.....	20,500	.....	1,682	10,465	12,147	1.96	107.69
1922.....	40,930	.....	30,000	.....	2,646	12,240	14,886	2.45	134.62
1923.....	45,241	15,977	29,900	45,877	4,180	15,092	19,272	1.98	108.79
1924.....	51,633	13,535	34,200	47,735	3,758	17,595	21,353	1.94	106.59
1925.....	60,855	17,400	37,300	51,700	4,428	19,954	24,382	1.87	102.75
1926.....	60,725	15,985	40,100	56,085	4,506	22,001	26,507	1.82	100.00
1927.....	64,537	13,025	47,000	60,025	3,580	23,133	26,713	2.03	115.38
1928.....	77,940	17,770	49,500	67,200	4,601	24,493	29,094	2.02	110.99
1929.....	68,724	20,957	45,847	66,804	5,354	26,501	31,855	1.73	95.05
1930.....	50,966	13,631	37,965	51,596	3,509	26,524	30,033	1.43	78.57
1931.....	48,497	9,637	37,310	43,947	2,460	25,940	28,400	1.43	78.57

From 1923 through 1926 the average number of renewal tires purchased per registered car gradually diminished. During 1927 and 1928 the average rose considerably, to a figure above that of 1923, the cause being

*Reprinted from *Monthly Labor Review*, U. S. Dept. of Labor, December, 1932.

the rapid introduction in 1925 and 1926 of the balloon tire, the first manufactures of which apparently did not last as long as the average high-pressure tires of the previous years. Since 1928, however, the average number of renewal tires purchased per registered car has been diminishing even more rapidly, and in 1931 amounted to only 1.43 tires, as compared with the 1927 average of 2.03 tires and the 1923 average of 1.98 tires.

The principal cause of this reduction in the number of renewal tires per registered car has unquestionably been the better quality and longer life of the average tire produced. In 1914 the average guaranteed mileage per tire did not exceed 3,500 miles. In 1922 the average life of a cord tire was more than 8,000 miles, while in 1930 and 1931 the life of an average tire was conservatively estimated at between 15,000 and 20,000 miles. Constant improvement in the quality of the product may result eventually in the manufacture of tires that will last as long as the average automobile. In that case the largest source of the present demand for tires will be automatically eliminated and tire manufacturing will be reduced to a comparatively minor part of the automotive industry.

The development and growth of the automobile-tire industry during the last decade is presented in the accompanying table, compiled from Census reports and covering the period from 1921 to 1931.

In 1921, 178 establishments employing an average of 55,496 wage earners produced 27,298,000 pneumatic and 401,000 solid tires. In 1931, 54 establishments employing on the average 48,341 wage earners produced 48,989,000 pneumatic and 103,000 solid tires. During this period, therefore, the total number of establishments fell from 178 to 54. The total number of wage earners, however, rose gradually from 55,496 in 1921 to a maximum of 83,263 in 1929 and then abruptly declined to an average of 48,341 in 1931. The rapid decrease in the number of establishments accompanied by the substantial increase in the average number of wage earners employed, clearly indicates the extent of concentration which took place in the tire industry during the short period between 1921 and 1929. The concentration is still further emphasized by the rapidly growing output per establishment. In 1921 the average yearly production was 155,600 pneumatic and solid tires per establishment; in 1927 it was 590,500 tires; and in 1931, 943,000 tires, or more than six times as much as in 1921.

Labor Displacement and Unemployment in the Tire Industry

Every increase in the output per man per hour in a plant indicates a corresponding reduction in the amount of labor time required to a given product. The labor reduction is measured by the difference in the labor time required to produce a unit of output before and after the change in the output per man per hour took place. The column of indexes for the man-hour output presented in Table 5 may, therefore, be considered as representing the trend of reduction in labor requirements in the six representative plants between 1922 and 1931, inclusive. In 1931 the index for the man-hour output measured in pounds of rubber compounded with fabric used in the production of tires was 186.08, which may be interpreted to mean that with the 1926 output per man-hour the total labor employment in 1931 would have been nearly twice the actual employment. For similar reasons the 1931 output with a 1914 output per man-hour would have required nearly seven times the amount of labor that was actually employed in 1931.

Translated into terms of employment, reduction in labor requirements per unit of output may be regarded as a decrease in the chances for labor employment in the industry. That there was no actual unemployment in the tire industry until 1930, notwithstanding the large increases in the man-hour output, was due solely to the fact that the period from 1914 through 1929 represented an era of tremendous expansion in the automobile industry, which naturally reflected itself in the production of pneumatic tires. In 1914 there were only 2,280,000 newly made and registered automobiles requiring tires. In 1929 this figure grew to 31,855,000 newly built and registered automobiles. In the tire industry the total number of tires produced rose from 9,000,000 to nearly 78,000,000. This tremendous upswing in the total tire production not only was sufficient to take up the surplus of labor produced by the constant increase in the man-hour output but with one exception necessitated an annual increase in the total number of wage earners employed. As already shown in Table 2, based on census reports, there were on the average 55,496 wage earners employed in 1921 for the production of tires and inner tubes. By 1929 the average total number of wage earners employed had risen to 83,263. Such a state of affairs, combining increased employment with large increases in man-hour output, could not continue unless demand increased at the same rate. This had already became apparent in 1927. From 1925 to 1927 there was an increase in annual production amounting to more than 4,500,000 tires. The increased employment thus made possible was, however, not sufficient to balance the loss in labor time required due to the increase in the man-hour output, with the result that the average number of wage earners employed in the industry decreased to 78,256 in 1927, as compared with 81,640 employed in 1925.

Labor Figures from 1927-1929

From 1927 through 1929 the very large annual increases from year to year in the total number of tires produced were again sufficient not only to overcome the downward employment tendency caused by the continued increase in the man-hour output but to increase the number of wage earners, the average for the year 1929 being 83,263. The statistics for 1931, however, show an entirely different situation. Production fell from 70,189,000 tires in 1929 to slightly less than 50,000,000 tires in 1931, or nearly 30 per cent, while the number of wage earners employed fell from 83,263 to 48,341, or 42 per cent. The difference between the proportional decreases in the total production and the total number of wage earners employed in the tire industry

Statistics of Production for Automobile-Tire Industry, for Specified Years, 1921 to 1931

Item	1921	1923	1925	1927	1929	1931
Number of establishments	178	160	126	109	91	54
Number of wage earners	55,496	73,963	81,640	78,256	83,263	48,341
Average per establishment	312	462	648	718	915	895
Amount paid in wages	$75,054,000	$108,623,000	$120,614,000	$120,064,000	$127,082,000	$62,385,000
Average per worker	$1,352	$1,469	$1,477	$1,542	$1,526	$1,290
Number of tires produced:						
Casings	27,298,000	45,425,000	58,784,000	63,550,000	69,765,000	48,989,000
Solid tires	401,000	944,000	1,035,000	813,000	424,000	103,000
Average per establishment	155,600	289,800	474,800	590,500	771,300	943,000
Average per worker	499.1	626.9	732.7	822.5	843.0	1,015.5
Number of inner tubes produced	32,082,000	57,229,000	77,388,000	70,855,000	74,043,000	47,728,000
Value of tires and tubes	$496,123,000	$644,194,000	$925,002,000	$869,688,000	$676,364,000	$352,924,000
Average per article	$17.91	$13.89	$15.46	$13.51	$9.63	$7.19
Value added by manufacture	$204,569,000	$279,029,000	$365,062,000	$370,467,000	$340,570,000	$221,036,000
Average per worker	$3,686	$3,776	$4,472	$4,734	$4,090	$4,574
Per cent earnngs are of value added per worker	36.68	38.90	33.03	32.58	37.31	28.20

was due to the very large increase in the output per man-hour, as witnessed by the rise from an average of 837.8 tires per wage earner per annum in 1929 to 1,013.4 tires per wage earner in 1931.

The data obtained in the present survey show a similar trend. The average number of wage earners in the six plants showed a continuous increase from 1921 through 1929, dropped in 1930, and took another substantial fall in 1931, though not so large a one as during the previous year.

Causes of Technological Displacement of Labor

As used in the present survey, the phrase "technological change" is defined to include all changes—whether in nature of the product, method of production, type of labor, hours worked, machinery and equipment used, etc.—which result in higher productivity per man-hour. This is in accordance with the actual conditions in the plant where seldom, if ever, is it possible to segregate any one factor as "the cause" of the increased productivity of labor in the plant. In some cases major changes, such, for instance, as the invention of the Owens bottle-blowing machine in the glass industry, the dial-telephone system, or the introduction of "canned" music in the moving-picture theaters, are revolutionary in scope and are responsible for abrupt and very large displacements of workers in their respective fields. Such changes, however, do not occur very frequently in any one industry.

Much more important from the point of view of labor employment are the smaller and more frequent changes which occur in large and small plants alike, day after day, increasing the output per worker in one part of the plant, eliminating one worker here or a group of workers there, and thus constantly reducing the labor time required per unit of output. The tire industry offers an instance in which the increased productivity of labor was due more to the so-called evolutionary small changes in production than to any revolutionary change in the process of tire manufacturing. Essentially there has been but one major change in the manufacture of pneumatic tires, and that occurred when the core process of tire building gave place to the flat-drum process. In some plants this change occurred as early as 1919. By 1927 practically all the major plants in this country had already adopted the drum process of carcass building. But the increase in the man-hour output in the tire industry did not cease in 1927. On the contrary, since 1927, and especially during the last two years, there has been an increase in man-hour productivity, much larger than during any preceding year in the history of tire making.

In searching for the actual causes of this enormous increase in productivity a series of changes was noted which in the aggregate contributed to a very large degree to the increased man-hour output. Lack of space makes it impossible to give here a detailed list of the changes which occurred in any one plant during even a single year. The following are therefore presented merely as illustrative of the type of technological changes which recently occurred in two of the plants. In the one column is shown the nature of the change and in the other its immediate effect on the labor engaged in the particular branch of the plant where the change took place.

In addition to such technological changes as those illustrated above, there were other changes the effects of which can not be measured precisely. Among these may be mentioned the sharp reduction in the labor turnover in the plants, the elimination of the less efficient machines and less efficient workers, and the introduction of the so-called motion time studies in several of the plants included in the survey. The motion time study consists in analyzing to the minutest degree the individual movements and operations each worker is required to make in the process of performing his or her task. The workers are then instructed to follow precisely the requirements set in the time analysis, thus eliminating a large proportion of what is known as waste motion. Automatic machinery and especially automatic conveyors are geared to the standard of output set for the workers around the machine or the conveyor. It is frankly admitted by the managers and engineers in charge of operations that during the last year these motion time studies have been, more than any other factor or factors, responsible for the increased output per man-hour.

Effect on Labor of Specified Technological Changes in Two Tire-Manufacturing Plants

Technological change	Effect on labor
3 rubber plasticators installed.	Saving in direct labor, due to increased man-hour output, of 328 man-hours per day, equivalent to displacement of 41 men.
Liquid soapstone devices installed for Banbury mixers.	1 man per shift, who formerly soapstoned by hand, eliminated. Labor saving, 24 man-hours per day, or 3 men displaced.
Direct method of tire building installed using gum-inserting machines, rotary cutters, compensators, liner stands, etc.	Savings in normal production: (1) Replacement of male with female labor, (2) elimination of time lost by assemblers due to stock changes, (3) direct handling of stock from rotary cutter, (4) elimination of trucking assembled bands to tire room. Saving in direct labor, 248 man-hours per day, or 31 men displaced.
Compensators installed on 40 tire-building machines, and room rearranged to take care of increased output.	Saving in normal production estimated to exceed 416 man-hours per day, or 52 men displaced.
Five curing units equipped with overhead conveyors, tire removers, etc.	5 men per shift eliminated.
Curing room rearranged to take care of increased production.	Saving in direct labor, when operating at full capacity, 173 man-hours per day, or 22 men displaced.
Preparation conveyor in tube room moved and service conveyor and automatic soapstoning rearranged.	2 girls per shift eliminated, saving 48 man-hours per day.
6 automatic cutters installed on tube preparation unit.	1 girl per shift eliminated.
New tray skids purchased for the handling of tubes and flaps.	2 bookers per shift eliminated.
Banbury mixers installed for 2 tandem calenders.	2 truckmen, 8 millmen, and 6 compounders per day eliminated, saving in direct labor 128 man-hours.
Cutting and rerolling departments consolidated and rearranged.	Direct labor saving, 112 man-hours per day, or 14 girls displaced.
Festoons and working platforms erected for the supplying of stock to the automatic unit of tire building.	3 supply girls per shift eliminated, 72 man-hours per day.
20 modern shoulder-drum machines installed to replace old flat-drum machines for building tires.	Direct labor saving 600 man-hours per day or 75 men displaced.
Tire conveyor extended from building unit to painting machine.	1 trucker and one-half a loading man per shift eliminated, saving 36 man-hours per day.
New system of sorting and assembling tubes installed.	6 girls eliminated, savng 64 man-hours per day.
Two conveyor units, one for the purpose of assembling inner tube valves and the other for the testing of valves installed.	5 men and 5 girls eliminated, saving 80 man-hours per day.

In considering the prospects of reemployment of the displaced workers in the tire industry the present depressed conditions of American industry as a whole and of the automobile trade in particular, both of which seriously affected the tire industry, are disregarded here. Assuming a return to normal conditions, the tire industry will, nevertheless, be confronted with a situation which makes it doubtful whether the industry will be able to reemploy the workers who lost their jobs because of technological changes or other reasons. On the one hand there is the slow but steady improvement in the quality of tires, resulting in considerable prolongation of the life of the average tire. Tires are purchased for their mileage qualities only, and while improvement in the tire may have the immediate result of increased sales for the plant producing it, in general the total demand for tires is reduced in proportion as the life of the average tire is increased. On the other hand there is the constant increase in the man-hour output of tires. Whether due to new and improved machinery, to better management, to elimination of the least efficient plants or the least efficient workers, to a speed-up process resulting in the elimination of waste time and motion—the result is a

larger output per man-hour with the invariable concomitant of reduced labor requirements per unit of output. From the point of view of labor employment, the tire industry appears to be "burning its candle at both ends," reducing the total demand for tires by improving the quality of the tire and at the same time further reducing the demand for labor by continually increasing the output per man-hour. There is at present no indication of any change in this trend. Unless there is an unforeseen, enormous increase in the total demand for tires, or unless definite steps are taken to increase the volume of employment in the industry by shortening the hours of work there is bound to be further reduction in total requirement of labor and therefore further unemployment in the tire industry.

During 1931 and 1932 a number of large tire plants adopted the 6-hour shift with a three to four-day weekly average for all of its employes. This plan helped the industry to retain on its pay rolls a larger number of men than would have been possible with a full-time schedule. But at the same time it considerably reduced the average weekly earnings of the workers, in some cases to the extent of seriously endangering their standard of living. The shorter shift and the shorter week accompanied by adjustments in the hourly rates of wages, may result in an increase in the labor cost of tire production. This is not an impossible development in an industry which for more than a decade has diverted to the consumer nearly all the benefits arising from the improved quality of the tire and from the labor savings caused by technological changes, in terms not only of a better tire but also of much reduced prices per tire. According to the census figures the 1921 average value of a tire and tube combined was $17.91. In 1929 the value per tire and tube combined was $9.63, and in 1931 it was only $7.19, or about 40 per cent of its 1921 value. Again in 1914 the average consumer's price of a tire and tube combined was about $30.50, in 1929 it was $15.70, and in 1931 only $12.07.

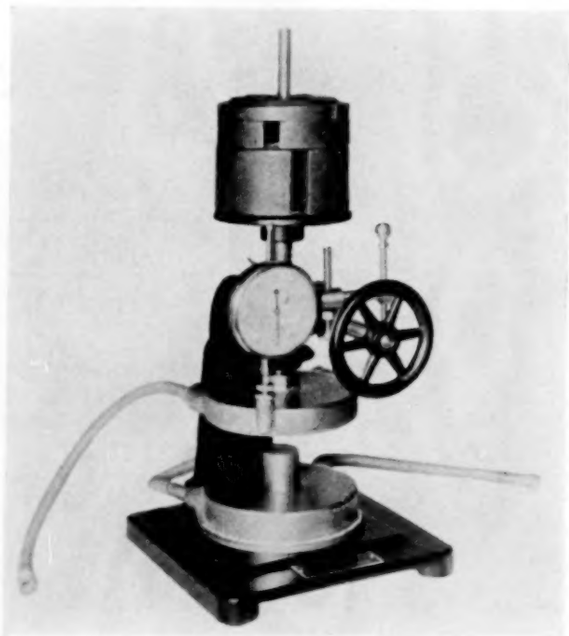
It is quite possible that in the past the continuous reduction in the price of tires acted as a stimulus for an increase in the total demand for tires. But with the present conditions in the tire industry and the prevailing low price of tires, any further reduction in the price can have only a very slight influence, if any, on the total demand for tires. By eliminating cutthroat competition and establishing a more or less stabilized price per tire, it would be possible for the tire manufacturers to divert some of the benefits arising from a further improvement in the quality of tires or additional savings in labor toward the employment of a larger volume of labor and a shorter working week. This alone will safeguard the industry from further increases in the ranks of its unemployed workers.

View of One Portion of the Goodyear Tire & Rubber Company Balloon Room Showing the Building of the 1932 Balloons for the Macy Annual Parade

A New Plastometer

THE new plastometer, recently developed by the Henry L. Scott Company, as illustrated below, has been developed as a practical tool for use in the mill room for control purposes. It should also prove of great value in the technical laboratory and it is so constructed as to offer many experimental possibilities.

The design combines new features which attempts to solve the problem of control through plasticity. No temperature controlled oven or other accessories are needed (except a timing device) and no definite size of specimen is required for the test. The platens of the Scott plasticity press are hollow cavities and so arranged that they may be heated or cooled by circulation of steam, hot water, brine, or other desirable or available media. The lower plate is arranged with a plug 1" high, 1" in area. This plug is hollow, the same as the rest of the lower plate and so arranged that all the circulation must pass through this



part. The upper plae is a flat surface and is attached to a spindle slidably mounted in a heavy cast iron frame, and by means of a sector gear attached to the hand wheel shaft, it may be raised or lowered.

A weight holder is on top of this spindle on which loose weights of the conventional scale type are placed. Thus this feature of the apparatus has a distinct advantage over other forms as the pressure can be varied.

Two stops are arranged, one to hold the plates at the maximum point of separation—the second to hold them separated at any predetermined distance. A gauge of the highest quality is provided and arranged so as to read zero when the plates are together, and give micrometer measurements of the entire movement of the spindle.

When loads heavier than 20 pounds are desired, such as in testing vulcanized rubber, a weight beam is furnished so that loads to larger amounts may be applied. Special forms of the machine are made to take loads up to 1,000 pounds or more.

The machine illustrated is of the low load type with a minimum pressure of 5 lbs. Machines of lower minimum are of specially made to suit special conditions.

EDITORIAL COMMENT

Industrial Sales Management For Present Conditions

"WHAT selling needs today is a good old evangelistic revival," Frederick B. Heitkamp, general sales manager, Cincinnati Milling Machine and Cincinnati Grinders, Inc., said in a recent address before the Industrial Marketing Conference of the American Management Association at the Hotel William Penn in Pittsburgh. "The spirit which causes men to do better than they believe possible seems to be lacking and needs to be brought back," Mr. Heitkamp continued. "Probably it isn't so necessary to discard old successful methods as it is to find a new dress for such methods, or to resurrect many of them which we have so long overlooked that they will appear new when brought to light again."

Much can be gleaned from his remarks to the advantage of the rubber industry.

Among the personal qualifications in the sales force which are most important under present conditions, Mr. Heitkamp said that courage comes first and hard work, second. To be added to such qualifications are vision, optimism, loyalty, willingness, perserverence, sense of humor, good health, a forceful but sympathetic temperament, and an ability to work with head up.

When a company is confronted with a problem of knowing whether it is profitable to keep members of its sales force on a part-time basis or materially to reduce the number of those employed, Mr. Heitkamp indicated that, except in rare cases, it is highly improbable that the part-time idea can be followed with success. "It is probably better to reduce the sales force and increase the size of territory covered by the men," Mr. Heitkamp said. "To keep a man on part-time tends to break down his morale, because it is frequently impossible for any one of the men to make a satisfactory financial showing."

In discussing the matter of salary for salesmen, Mr. Heitkamp said that, at present, base salary with commission is probably the most satisfactory method of compensation. "Due to the ups and downs in the sale of industrial equipment," he continued, "it is for the best interest of the men as well as for the company to have a base salary, which under ordinary conditions will carry them through thick and thin. The commission gives an incentive, and if properly arranged will take care of the advance in salesmen's compensation with the upturn in business. This probably will insure the maximum effort."

Unless a salesman has been making commissions large enough during good times to carry him over the depression, it is hardly fair to shift him to a straight commission basis now, Mr. Heitkamp declared. "Some companies have even taken salesmen off a commission basis and put them on a small salary just to keep them going. Others have gone the limit and have put their men on a strictly commission basis with a very definite lowering of morale together with a lowering of expense. Napoleon said that an army travels on its stomach—and no man can attempt to do a good selling job dominated by fear. If he has a base salary, enough to carry on the bare necessities, he is usually willing to take his chance with the company on increased earnings through increased production."

Methods of effecting savings in selling expense which Mr. Heitkamp mentioned included the following: Elimination of branch offices; reduction of personnel; reduction of straight salaries; reduction of rent; elimination of promotional expense not directly productive of results; closing up or leasing of warehouses; reduction of traveling expenses; elimination of entertainment expenses; reduction of clerical staffs in home office; lessening the amount of free service; reduction of automobile allowances.

Mr. Heitkamp believes that more extensive marketing research is justified at the present time. "It should pay big dividends as the business curve moves upwards," he said. "A company can no doubt go to extremes in marketing research," Mr. Heitkamp continued, "but on the other hand this activity should be extensive enough so that, before any move is made, a clear idea is secured in advance as to results that can be expected.

"The days ahead are days of harder work," Mr. Heitkamp said in conclusion. "They are days in which the best man is going to win—the best man on your sales force and on mine—the best sales force in one industry against a competitor—the best sales force of one manufacturer against that of his competitor. It is going to be a race with the survival of the fittest—a survival of the producer. Management has its responsibilities—to show courage, to show leadership—to take initiative and to pioneer. Sales executives will be charged with the responsibility of suggesting and executing policies which will release pent up capacities and which will arouse enthusiasm."

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

RUBBER SHIPMENTS DECLINED IN 1932

Export movement of crude rubber from British Malaya increased to the European continent, to Japan and to British possessions, but fell below the previous year to the United States, Great Britain and other smaller countries during 1932.

Exports to the United States fell sharply at the year-end, from 21,347 tons in November to 16,824 tons in December, and for the full year amounted to 272,066 tons, compared with 341,051 tons during 1931, a drop of 20.2 per cent.

The United Kingdom, the second largest importer, was shipped 5,317 tons in December against 4,181 tons in November, bringing the full year's arrivals to 68,444 tons, compared with 74,365 tons during 1931.

Japan, who has taken increasing quantities of the commodity in recent years, again increased her requirements during 1932, Malayan exports to that country amounting to 42,117 tons, compared with 32,479 tons in 1931.

Due probably to larger requirements by Australia, rubber exports to British possessions last year aggregated 11,108 tons, compared with 7,866 tons during 1931.

Due to continued buying by Russia, Germany and smaller countries, shipments to the Continent in 1932 were increased to 73,263 tons, from 54,993 tons during 1931. Exports to "other countries" were 6,068 tons, as compared with shipments of 7,061 tons during 1931, while shipments of "latex revertex," totaled 5,191 tons, as contrasted with 1,925 tons during the previous twelve months.

Total crude rubber exports from Malaya during 1932 were 478,262 tons, as against 519,740 tons during 1931, a falling off of about 8 per cent on the basis of preliminary figures.

Rubber exports from the island of Ceylon were substantially smaller during 1932, totaling 49,479 tons, as compared with 61,573 tons during 1931, a decrease of about 19 per cent. Of this total, the United States took the largest quantity. December shipments from Ceylon were 5,169 tons, compared with 4,450 tons during November.

Faultless Elects New Head

T. W. Miller, chairman of the board of directors of the Faultless Rubber Company, Ashland, O., was elected president of the company at a reorganization meeting. Mr. Miller succeeds C. D. Hubler, as president of the company.

W. H. Balch was elected vice-president of the company. He has served several years as sales manager of the Dr. Hess and Clark Company, of Ashland, O., and was formerly connected with the Faultless Rubber Company. Marcell Kauffman was elected vice-president and George A. Miller secretary and treasurer. Balch and Kauffman were elected to the board of directors. Hubler, who is retiring from the company, served as president since 1927 and has been with the company in various capacities during the past twenty-seven years.

The regular quarterly dividend of 50 cents a share, payable April 1, was declared.

Tire Plant Activities

Factories of the Goodyear Tire and Rubber Company in Akron and Gadsden, Ala., are now on a four-day week in the tire divisions.

Four shifts of six hours each were announced for the Akron plant and three shifts will work at the Gadsden factory. Both plants have been on a three-day week.

At the B. F. Goodrich Company, it was reported a four-day week is now the minimum in the tire divisions, with some other parts of the plant on heavier schedules than in tire production.

Firestone Tire and Rubber Company officials said that for two months they have been hiring more men, and spreading out the work, rather than increasing hours of work. The six-hour day is in effect at Firestone.

SPRING MEETING OF RUBBER DIVISION

As a reminder—the Spring meeting of the Rubber Division, A. C. S., will be held in Washington, during the week of March 26-31, 1933. The headquarters of the Rubber Division will be the Raleigh Hotel, 12th Street and Pennsylvania Avenue, N.W.

It is not too early now to plan on attending. Write the secretary of the Division, Dr. H. E. Simmons, at the Municipal University, Akron, O., and arrange also for your hotel reservations now.

DuPont R & H Announcement

Effective January 1, 1933, the business heretofore conducted by Roessler and Hasslacher and Chemical Company, Inc., is being continued as a department of E. I. DuPont de Nemours and Company, Inc., and will be known as the R. and H. Chemical Department.

TIRE REPLACEMENTS SHOULD TOTAL 29,000,000

There are 29,000,000 passenger car tires on the road today that should be replaced at once, it is estimated by L. S. Simpson, general sales manager, tire department, United States Rubber Company.

Mr. Simpson bases his estimate on a survey recently made by his company to determine the number of unsafe tires in operation. This survey showed that one of every three tires checked had been worn smooth, and was a real danger to motoring.

"Multiplying the number of passenger cars registered in the United States, approximately 22,000,000, by four, the number of tires in use on each car, and dividing by three, we get a total of 29,000,000," explained Mr. Simpson.

"This figure is ultra conservative, because it takes into account only those tires with absolutely smooth tread. It does not include spares, which are likely to be in worse condition than the tires in operation, or the millions of tires the condition of which borders on the danger line.

"In view of this situation, characterized by a real menace to motoring, it would seem that a good replacement market definitely awaits the tire industry in 1933."

Rubber Goods Exports Up

For the first time since last March exports of rubber products increased in November as compared with the previous month, according to E. G. Holt, chief of the rubber division, Department of Commerce. The increase amounted to about $200,000, with November exports totaling $1,325,167, compared with $2,329,424 during November, 1931.

The principal gains for the month were in truck and bus tires to British India, Italy, China, Switzerland and Venezuela. Moderate gains were made in automobile tires to the same countries and total shipments of inner tubes also increased.

There was a large percentage gain in exports of rubber toys, rubber bands, rubber gloves and erasers. German buying accounted for the increase in the last item. There was a further small decline in exports of rubber footwear.

Goodrich Names Adv. Agency

It was announced recently that the advertising agency of Ruthrauff & Ryan, New York, N. Y., had taken over the account of the B. F. Goodrich Company, and will handle the business from now on.

BANK REPORT REVIEWS SITUATION IN INDUSTRY

"Still unfavorable and disturbing" is the description of the tire price situation by the monthly business review of the Fourth Federal Reserve Bank at Cleveland.

Tire production in the first 10 months of 1932, the review said, was 18 per cent below the same period of 1931. The bank bulletin cited drops in crude rubber and cotton prices during 1932 as chief cause of the unfavorable price situation, pointing out also that tire dealers are operating on a hand-to-mouth basis, holding inventories at low levels.

Bright spots in the rubber business appeared in the boot and shoe divisions for the first time in four years, the review said, although foreign competition has become serious. Mechanical goods held up well during the year, although the drop from 1931 in the amount of rubber consumed by the mechanical goods production was only slightly less in 1932 than in other divisions of the rubber business.

The bank review reported rubber consumption in November was 21,910 tons and crude imports were 27,080 tons, with crude stocks at latest report about 30 per cent above the 1931 figure.

Scrap Rubber Convention

The twentieth annual convention of the National Association of Waste Material Dealers, Inc., is to be held at the Sherman Hotel, Chicago, Ill., from March 13th to 15th inclusive. Aside from the annual meeting of the Association and the annual banquet there will be important and interesting meetings of all the various divisions, including the scrap rubber group and subsidiary associations connected with the parent organization.

The Association has been advised that a preview of the Century of Progress, otherwise known as the latest World's Fair, will be possible to members and guests attending the convention, and irrespective of business conditions a good attendance is anticipated.

New Rubber Company

The Marlex Manufacturing Company, of Patrick's Corner, N. J., has been chartered at Trenton, N. J., with 1,000 shares no par to manufacture rubber massage devices. Manning Patrick, Thomas M. Clark and William J. Harding, of New Brunswick, are the incorporators.

Corduroy Builds Addition

Corduroy Rubber Company is building an addition on the north side of its plant at Grand Rapids, Mich., in order to increase floor space in a plant rearrangement program. It is expected the addition will be ready for occupancy within thirty days.

The Armstrong Rubber Company, Inc., West Haven, Conn., has started construction of an addition to its storage building, to be used for warehousing of tires and other rubber products. The addition will be one story in height, 50 x 40 feet.

"The Voice of Firestone"

Speaking before the "Committee of 100" at Miami recently, Harvey Firestone said: "I said last fall we should re-elect President Hoover; but since then I have changed my mind. We must change our attitude and have more faith and respect for others. We got into this depression because of selfishness and greed for money and power. Now we must reverse our former attitude." Firestone also pointed out that during the difficult years large corporations have had the most trouble while smaller business units have found ways to overcome their problems. The Firestone companies, he said, reduced their expenditures 41 per cent last year over the preceding year.

Goodrich Gardens a Success

Final figures on the industrial cooperative garden of the B. F. Goodrich Company, near Akron, O., disclose that approximately 1,010,000 pounds, or more than 500 tons of produce were grown on the 275-acre tract by part time and former employes and distributed to them.

Believed the largest project of its kind in the country, the garden engaged nearly 1,000 men in planting, cultivating and harvesting the crops since it was started last spring.

Commodity Exchange Legal Firm

Julius B. Baer, counsel for the New York Produce Exchange, and the Rubber, Silk, Metal and Hide exhanges, announced recently the formation of the law partnership of Baer and Marks, with offices at 43 Cedar street, New York. The firm, of which Donald Marks will be the other partner, will engage in general practice, specializing in legal work for commodity exchanges and matters relating to securities and commodity trading.

Mr. Baer handled the organization of the last four of the exchanges named above which now plan to consolidate under the name of Commodities Exchange, Inc., of which he is also counsel. He also organized the Wool Associates of the New York Cotton Exchange. Mr. Baer, who has practiced in New York since 1904, is co-author of the book "Commodity Exchanges."

Mr. Marks was admitted to the bar in 1921 and has been a member of the firm of Seligsberg and Lewis for a number of years, specializing as trial counsel. He was a second-lieutenant in the U. S. Army Air Service during the war and is a graduate of University of Rochester and Harvard Law School. During the past five years he has cooperated with Mr. Baer in exchange work.

Stedman Dividend

The board of directors has declared the 57th consecutive quarterly dividend of $1.75 per share on the preferred stock of the Stedman Rubber Flooring Company payable January 3, 1933, to stockholders of record at the close of business December 27, 1932.

CANADIAN GOODYEAR ISSUE DIVIDEND CHECKS

Checks covering dividends on the 7 per cent preferred and common stocks of Goodyear Tire and Rubber Company of Canada for the final quarter of 1932 have just been mailed to shareholders..

In a letter accompanying the checks, C. H. Carlisle, president and general manager, states that the year has been most trying and disappointing.

"Your company has maintained its proportionate share of the available business and has used the maximum of economy throughout the organization, but the low volume of business, both domestic and export, has had the effect of increasing unit cost and thereby reducing profits," says Mr. Carlisle.

"During the coming fiscal year we trust that each and every shareholder will take a direct interest in the sale of the products of your company. These unusual times require united efforts and we all share mutually in the benefits to be gained from the sale and goodwill of our product."

The letter states that inventories will be taken as of December 31, 1932, adjustments will be made for obsolescence and depreciation and a complete statement will be rendered to shareholders as early in the year as possible, likely the latter part of January or the early part of February.

Sundries Demand Grows

There has been a satisfactory gain in orders for sundries rubber goods among the rubber factories in the Providence, R. I., district, in spite of the fact that January ordinarily is a poor month in that respect, and that it is a period of readjustment following year-end inventory taking. The gain is reflected by some expansion in operating schedules at factories and larger employment.

Manufacturers of rubber shoes, on the other hand, are preparing in most instances to taper off production activities. Tennis shoe makers are practically at the close of their active season for production and there has also been a slump in demand for miscellaneous rubber footwear due to the comparatively dry winter so far.

Officials of rubber shoe companies state that progress is being made in combatting the influx of foreign shoe brought about by depreciated currencies of foreign countries. Collections are rather good; at least improved over last year.

Robs Rubber Factory

Four armed bandits on December 2 held up the plant of Young's Rubber Corporatino at Trenton, N. J., and stole $522 of the $800 payroll after binding John Ross, plant superintendent, to a chair in the office. Ross and George R. Smith, a bookkeeper, were making up the payroll when the bandits entered. Both employees dashed through the plant, but Ross was captured and returned to the office and bound to the chair with wire. The robbers stole Smith's car, which they later abandoned some distance from the plant.

AUTO REGISTRATIONS DECLINE IN NOVEMBER

Reports from 33 states and the District of Columbia show November registrations of new passenger cars 32.2 per cent below October and 44.9 per cent below October of last year. The total recorded is under 24,500 units.

Ford leads, with 33.5 per cent of the total. Chevrolet is second with 20.7 per cent and Plymouth is third with 13.0 per cent. Last week's returns from 17 states gave Plymouth 11.3 per cent.

Eighty-six per cent of all registrations thus far recorded for the month are in the ten leading lines. After Plymouth these are, respectively, Pontiac, Essex, Buick, Dodge, Oldsmobile, Willys-Overland and Rockne. Except for Buick these cars are all in the lower price range.

Harry B. Hamlen

Harry B. Hamlen, 68, assistant treasurer of the Goodyear Tire and Rubber Company and known throughout the country as the dean of American credit men, died at his home, 876 Mayfair road. He was the victim of a heart attack.

Mr. Hamlen joined the Goodyear organization in 1905. He was the 27th office employe to be connected with the company.

In 1909 he was made credit manager and has held that post ever since. During that time he became widely known over the United States as the dean of credit men.

Previous to his association with Goodyear, Mr. Hamlen was with Armour and Company, wholesale meat dealers, for 13 years, in Akron, Louisville, Kentucky, and Chicago.

When Mr. Hamlen joined Goodyear in 1905 the offices occupied a small two-story building where the general office entrance stands now. He was the company's first credit manager.

His duties in the years since had taken him on regular trips throughout the country. He was well known in the rubber industry everywhere in the United States and also was well known as a speaker before credit organizations.

Rubber Stock Quotations

	Last Price Jan. 17, 1933	Dec. 31	—1932— High	Low
Aetna	1	1½	3	1½
American Hard Rubber	—	—	—	—
Faultless	17½	18	25	18
Firestone	13¼	14½	18½	10¾
do. 6% pfd.	63	60	68	45½
Fisk	—	—	¾	⅛
do. 1st pfd.	—	—	2⅜	¼
General	27	27	49¾	18
do. pfd.	30	30	60	30
Goodrich	4⅞	4	12⅝	2¼
do. pfd.	—	12	23⅝	7
Goodyear	15	14⅝	29¾	5½
do. 1st pfd.	40¼	51⅞	69½	19¾
India	20	2¾	8	½
Kelly-Springfield	1⅝	1	2⅞	½
8% certfs. pfd.	—	—	24	7
Lee	6	5	7⅞	2
Mohawk	1⅞	1⅞	4	1
do. pfd.	20	20	20	20
Norwalk	—	1⅝	2½	⅝
Pirelli	—	31¼	31¾	21
RaybestosManhattan	6⅛	7½	12¾	4⅞
Seiberling	—	2	5	1
do. pfd.	14¾	14¾	22	5
Thermoid	—	1¼	4	⅞
U. S. Rubber	4½	4½	10¼	1¾
do. pfd.	9⅝	8½	20¾	3¾

Names in the News

S. C. KNAPPERT has resigned as secretary of the International Association for Rubber and Other Cultivations in the Netherlands Indies, and P. F. VAN DER BERG has been temporarily appointed to his place. The main offices of the Association are at Amsterdam.

O. B. WILSON, formerly manager of the Cleveland, Ohio, office of The Brown Instrument Company, has been appointed district manager of the territory comprising Texas, Louisiana and Southern Arkansas with headquarters at Houston, Texas.

W. D. SHILTS
Secty. Goodyear, who has recently returned from a world tour.

B. H. BINDER, who has been appointed successor to the late SIR JOHN FERGUSON as chairman of the India Rubber, Gutta Percha and Telegraph Works, Ltd., Silvertown, England, has, like his predecessor, not hitherto been closely associated with the rubber manufacturing industry. He is a director of Wm. Beardmore and Co., Ltd., famous Scottish engineering concern, chairman of the Inveresk Paper Co., Ltd., and chairman or director of a large number of South American transport enterprises.

SIR ERIC GEDDES, chairman of the Dunlop Rubber Company and of Imperial Airways, Britain's air transport combine, left London shortly after Christmas for Capetown. He is accompanied by G. E. WOODS HUMPHREY. They flew over the South African route, the object of the trip being the furtherance of air transport facilities.

SAM BREWER, assistant truck and bus tire sales manager of the Firestone Tire and Rubber Company, is the new president of the Akron alumni of Sigma Alpha Epsilon fraternity.

EDMOND LONG, Goodyear operating manager for Brazil, with headquarters at Sao Paulo, is in Akron visiting his mother, Mrs. Olive Long, and his brother. Mr. Long flew by plane from South America to Miami, Fla.

C. A. GRONCY, formerly general foreman of the final finish department of the B. F. Goodrich Company, has been placed in charge of all planning and scheduling activities in the tire division, it is announced by E. H. BARDER, general superintendent of the division. Mr. Groncy has been with Goodrich about 25 years and has been a general foreman for five years.

J. S. PEDLER, B. F. Goodrich Company aeronautic representative, attended the Miami, Fla., air races early in January.

HENRY B. THACKSTON, southeastern division sales manager of the B. F. Goodrich Company, with headquarters in Atlanta. Ga., spent some time in Akron recently conferring with company officials.

T. B. TOMKINSON, comptroller of the B. F. Goodrich Company, returned to his office January 10, following an attack of influenza which confined him to his home for several days.

R. J. GEIS, New York district advertising manager of the B. F. Goodrich Company, has been awarded the Order of the Purple Heart by the War Department. Mr. Geis was a captain in the 71st New York National Guard division and was wounded in Belgium during the World War.

S. B. ROBERTSON, B. F. Goodrich Company vice-president, T. A. ASPELL, general manager of manufacturers' sales, and C. B. O'CONNOR, general tire sales manager, represented Goodrich at the New York Automobile Show opening January 7, it was announced recently.

F. W. NASON, known as "Pop" in Goodyear Export Company, has been awarded a 25-year service pin and $250 in gold. Mr. Nason joined Goodyear at the Buffalo branch in 1908, went to Rochester, and was transferred to the export organization in March, 1917, as office manager in Java, Dutch East Indies, where he spent most of his service.

Goodrich Men Honored

Twenty-nine members of the mechanical goods division of the B. F. Goodrich Company defied superstitions that are supposed to hover around Friday, the 13th, when they gathered at Young's Hotel to pay honor to seven fellow workers in Akron who have just completed 20 years' service with the company.

These seven are: Robert Coleman, Wadsworth; James Moore; Alex Shoemaker, Barberton; Clarence Weckman; Daniel Dunsmore; Clarence Johnson; and S. S. Surgeon.

They were presented their 20-year pins by G. L. Matthias, general superintendent of the mechanical goods division.

· Rubber News Around the World ·

CANADIAN INDUSTRY OPTIMISTIC FOR 1933

"The rubber industry is out for increased business in 1933 and it is stripped for action," declares W. A. Eden, president, The Dominion Rubber Company, Limited, in an optimistic review of the outlook for 1933. "For the first time in three years, there are indications that improvement is at hand. The Imperial Economic Conference has already done some good—only a suggestion of the good it will do—but a study of British and Canadian trade figures shows that the agreements reached at that memorable meeting of the Dominions and the mother country are beginning to bear fruit. Then the United States presidential elections are over and the Republic can now begin to settle down to real business. I see advantage to Canada from both these factors. It is true it is a general advantage, and not one of direct significance to the Canadian rubber industry, but if trade in general shows improvement, our business cannot fail to do so. Tire, footwear and other inventories have been greatly reduced. Quality is better than ever, due to constructional and chemical improvements. Conditions within the industry are harmonious and sales policies are constructive.

"This is the position of the industry itself as I see it. What about the market? First, and most important, because it already shows distinct improvement, is the outlook for rubber footwear. In the fall of 1932, for the first time in four years, seasonal conditions favored buying. All over the Dominion footwear sales have been exceptional. If they continue, and I believe they will continue, the year should clean the retailer's shelves and put us in a really healthy position.

Replacements Inevitable

"With regard to tires, I frankly do not see how the present situation can continue much longer. In 1931 business was running on the rims; now it must be getting down to the hubs. Replacement cannot be put off forever. Indeed, it has been put off so long now that the situation is becoming a menace to public safety. There is official concern over defective brakes and the offending motorist gets scant consideration. It is a question of fix or be fined. What about tires? In these days of snow and ice and ruts, of hail and blizzard, the strain on tires is excessive. And yet there are thousands of tires on the road with not only the thread worn away but the very casing worn to the bursting point. Whatever public highway one goes on, there are not one but a dozen motorists changing from the very bad to the only less bad—putting off renewals away past the safety period, making cheap repairs where considerations of public safety demand not repairs but replacement. If this is the menacing position at the present, what will it be by the spring? Immeasurably worse. I look for a progressively improving renewal market in 1933.

"The outlook for export trade is frankly not good. The recent trade agreements will bring little, if any, benefit to either the tire or the footwear business in the markets of Great Britain, Australia or South Africa. On the other hand, New Zealand offers better prospects, and I am looking forward to improved trade with that country.

"The market for mechanical goods is dependent upon general industrial conditions, but as I look for a slow but sure improvement in these conditions, so I anticipate a measure of improvement in the equipment end of our business. Altogether, I think the industry has weathered the storm of the past three years remarkably well, and that it will soon be in smoother waters. The industry has, and merits, the confidence of the Canadian public. That public will soon be a buying public."

RUBBER "SPIRITS" FOR MOTOR FUEL

The use of spirits from rubber as a motor fuel is being investigated in British Malaya, according to reports reaching the Rubber Division, of the Department of Commerce.

An English scientist in Singapore, who has been conducting experiments along this line, is reported to have propelled his motor car successfully with this rubber distillate.

The existing low market price for crude rubber, it was pointed out, assures this new experiment a sympathetic interest in British Malaya, the largest rubber producing district in the world.

Avon Ceases "Own-Name" Tires

The Avon India Rubber Co., Ltd., announces that it has agreed to cease the manufacture and supply of all "own-name" tires. In a letter to the Motor Trade Association of Great Britain (dated Sept. 30, but only just made public), R. H. Comley, sales manager, says:—

"It is legally necessary for us to give three months' notice to each of our contractors for 'Own-name' tires to terminate the existing agreements and this has been done. During the period of notice we shall use our influence to prevent the retail sale of these tires at any price below the recognized new retail list prices for second-hand tires."

CARL C. SHIPMAN, factory superintendent of the Canadian Goodrich Company, Ltd., plant at Kitchener, Ont., was at the Akron factory the week of January 9 to 16 studying new methods and processes.

LETICIA—NOW BATTLE AREA, ONCE RUBBER CITY

A tiny city on the Amazon, once important as a rubber shipping port, today threatens to send three nations of South America into war for its ownership, according to United Press dispatches.

The port is Leticia, squat, sun-baked town surrounded by dense, tropical jungles. Troops and naval forces of Peru, Colombia and Brazil are concentrating near it.

The Peruvian government concentrated its forces at Iquitos, the main Peruvian port on the Amazon and only 300 miles above Leticia, which is 2700 miles up the Amazon.

The western concentration of Colombian troops was at Caucaya, northwest of Leticia, on the Putumayo. Colombia was reported to have ordered fighting and bombing airplanes from the United States.

Leticia, now an insignificant port, knew prosperous days during the Brazilian rubber boom. Like Manaos and other cities of the rubber country, it was almost deserted after the rubber market collapsed. Peruvian irregulars seized Leticia, September 1, imprisoned Colombian authorities, confiscated the customs and took charge of public buildings.

The Colombian authorities were released later and made their way into Brazilian territory at Tabatinga. But the Peruvian government refused to oust the forces occupying Leticia. It claimed the seizure was the result of "national aspirations" of the natives of the Peruvian province Loreta, who want Leticia reincorporated into Peru.

Bata to Make Flooring

A recent announcement following an important meeting of the board of directors of the Bata Company, Zlin, Czechoslovakia, states that the company intends to extend their manufacturing activities to the rubber flooring field.

At present the concern is consuming upwards of 5,000 tons of rubber annually in the manufacture of rubber footwear, soles, etc. Before the recent death of Mr. Bata, it was announced that the company would embark on the manufacture of tires but it is understood that this project has been given up, at least temporarily.

British Ban Solid Tires

Among the new motoring "musts" which came into force throughout the United Kingdom on January 1, the most important is the ban on solid tires for heavy vehicles.

It is required that all automobiles exceeding one ton unladen, registered for the first time, must be fitted with pneumatics. All trailers, wherever constructed, must have either pneumatic or soft or elastic tires (except for furniture trucks, agricultural trailers, and horse-boxes), and all trailers constructed after January 1 must have pneumatics.

Rubber Goods and Specialties

Sponge Rubber Shoe Pad

The Selby Shoe Company, Portsmouth, Ohio, have developed a new type of women's shoe with a soft sponge rubber metatarsal pad. The new line of shoes are selling under the name of "Styl-Eez."

The metatarsal elevation is of sponge rubber and it not only forms a support for the matatarsal bones, but, likewise, is a soft

Showing Curved Inner Side of Insole

cushion for the forepart of the foot, giving a delightfully comfortable feeling.

Most metatarsal elevations are built into the inner sole; and, consequently, are hard and unyielding, whereas, due to being of sponge rubber, the "Styl-Eez" metatarsal elevation gives the foot the delightful feeling of resting on a cushion.

According to the manufacturers, the women who wear the shoes tell the dealers that while they are conscious of the metatarsal elevation in the shoe, it is a feeling of comfort rather than something forcing the bones of their foot into position. This speaks well for the idea of the rubber elevation in place of leather.

Goodrich's "Flying Silvertown"

Another addition to its line of low pressure tires, the Flying Silvertowns, is announced by the B. F. Goodrich Company, Akron, Ohio.

This fourth member of the low pressure family is the 6.00-16 size, designed for the Chevrolet, DeSoto, Dodge, Essex, Ford, Oldsmobile, Plymouth, Pontiac and Rockne lines. Air pressure of 25 pounds is recommended.

Original member of the Goodrich low pressure group was the 7.50-15 recommended for Chevrolet, DeSoto, Essex, Ford, Graham, Oldsmobile, Plymouth, Pontiac and Rocknes. This was followed by the 7.00-16 for Chevrolet DeSoto, Essex, Ford, Oldsmobile, Plymouth Pontiac and Rockne makes and the 6.50-16 for Chevrolets, Fords, Plymouths and Rocknes.

Schrader Dublchek Display

Good displays help to increase sales. There is no way of knowing how many sales of a much needed product are lost through being "shelved."

The new Schrader "Dublchek" display is unique in its help to increase dealer's sales. It has the advantages of providing both open and closed display in one unit. Brightly col-

ored, it comes packed with 50 Dublcheks. Thus, the usual package of 100 now has the benefit of Dual Display. It is designed to effectively pave the way for a demonstration and a sale.

"Propr-Bilt" Basketball Shoe

A new basketball shoe built under "Propr-Bilt" design and patents, developed to prevent and correct "pronation" and weak ankles, has been announced by the Servus Rubber Company, Rock Island, Ill.

"Pronation, or a turning in of the ankles causes an abnormal strain and pull on the foot and leg muscles, which soon manifests itself in fatigue, burning feet, headache, nervous indigestion, neuritis, and severe pains in the ankles, legs, knees, back and hips," states the company.

"If this pronated condition is not corrected, the bones of the feet will assume abnormal positions, and corns, hammer-toes, bunions, callouses, warts or more serious deformities will be the result.

"The 'Propr-Bilt' basketball shoe prevents and corrects pronation. The Propr-Bilt shoe protects the feet and arches of the normal individuals, and it treats abnormal feet so that such feet will function in a natural way."

Original 1933 Tire Equipment

A two-page table on 1933 original tire equipment for American automobiles has just been published by the B. F. Goodrich Company, Akron, Ohio. The table lists the name and model of all makes, the wheel base, number and type of cylinders, tire size, number of tire plies, rim size and type and the tire valve type.

Data on 85 models of 38 makes of cars are given in the table. Copies can be obtained by request to the manufacturers.

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LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, JANUARY 19, 1933

Crude Rubber

PRICES in the crude rubber market showed little change during the fortnight, declining slightly from the already low position held at the start of the New Year. In the face of continued heavy shipments from the Far East and the very disappointingly low consumption rate, the statistical position can be said to have become more unfavorable for the commodity. Consumption within the United States during December only reached 16,990 tons, the lowest recorded since January, 1922. There seems to be no factors in the market situation which would warrant any sharp change in price, either way. Factories apparently have secured such requirements as they deem necessary and at present low prices, there is no particular incentive to lay in stocks for distant needs. Trading in futures on the Exchange has been dull.

Prices for crude rubber, as of January 19, as reported on the New York outside market, were as follows:

Plantations—			
Ribbed Smoked Sheets—			
Spot	—	@	.02 31/32
Jan.-Mar.	—	@	.03
Apr.-June	—	@	.03⅛
First Latex, crepe spot	—	@	.03¾
Amber Crepe, No. 2	—	@	.02 9/16
Amber Crepe, No. 3	—	@	.02 7/16
Amber Crepe, No. 4	—	@	.02 5/16
Brown Crepe, Clean thin	—	@	.02 7/16
Brown Crepe, rolled	—	@	.02 5/16
Latex—			
Liquid Latex, per gal.	.70	@	.75
Paras—			
Up-river, fine	.06½	@	.06¾
Up-river, coarse	Nominal		
Acre Bolivian, fine	.07½	@	.07¾
Caucho Ball, Upper	—	@	.03
Centrals—			
Central scrap	.04	@	—
Esmeraldas	.04	@	—
Balata—			
Block, Ciudad	—	@	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers			
Jan.	—	@	2 5/32d
Mar.	—	@	2 3/16d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers			
Spot	—	@	1⅞d

Reclaimed Rubber

There has been no change reported in prices for standard grades of reclaimed rubber during the past fortnight. It is hardly to be expected that present prices can be reduced lower and with current crude prices at prevailing low levels it is hard to imagine any appreciable advance in sight for reclaim grades. The percentage of reclaimed rubber used to crude, however, is still holding up favorably.

Late prices for standard reclaim grades follow:

High Tensile				
High Tensile Red	lb.	.04¾	@	.05
Super-Reclaim Black	lb.	.05	@	.05¼
Shoe				
Washed	lb.	.05¼	@	.05¾
Tube				
No. 1 (Floating)	lb.	—	@	.06½
No. 2 (Compounded)	lb.	.04½	@	.04¾
Tires				
Black	lb.	.03¾	@	.04
Black, selected tires	lb.	.04	@	.04¼
Dark Gray		.05	@	.05¼
Light Gray	lb.	.05½	@	.06
White	lb.	.05½	@	.05¾
Truck, Heavy Gravity	lb.	.05	@	.05¼
Truck, Light Gravity	lb.	.05¼	@	.05½
Miscellaneous				
Mechanical blends	lb.	.03	@	.03½

Scrap Rubber

No change has been reported in the scrap rubber situation over the last two weeks. Prices remain unchanged and the market is dull. A source of encouragement is in the way the export market has been maintained, but unattractive low prices make trading in this particular far from satisfactory. Accumulations are reported as only moderate in the face of the restricted demand. Late prices for standard grades follow:

(Prices to Consumer)

Auto tire peelings	ton	16.00	@18.00
Mixed auto	ton	6.50	@ 7.50
Clean solid truck tires	ton	24.00	@27.50
Boots and shoes	ton	15.00	@17.50
Arctics, untrimmed	ton	10.00	@12.50
Inner tubes, No. 1	lb.	.02	@ .02¼
Inner tubes, No. 2, compounded	lb.	.01¼	@ .01⅝
Inner Tubes, Red	lb.	.01⅝	@ .01½

Cotton

THERE has been a slight improvement in raw cotton prices within the last few days, following a recession from the levels prevailing at the beginning of the year. A fairly active market for spot cotton is reported and export shipments are holding their own in the light of increase mill demands from Europe. Developments in Congress in connection with Farm Relief legislation are having an effect on the market, but the uncertainty of the situation is an unfavorable factor.

High, low and closing prices on the New York Cotton Exchange, as of January 19, were as follows:

	Jan. 17			Jan. 4
	High	Low	Close	Close
Jan.	6.15	6.08	6.15	6.12
Mar.	6.24	6.02	6.22	6.21
May	6.36	6.15	6.33	6.35

Tire Fabrics

There were no changes reported in the prices for the leading tire fabric constructions, during the past fortnight. The market remains sluggish with little buying interest in evidence, in the face of restricted tire manufacturing on the part of the leading plants. Such sales as have been reported have been of the hand-to-mouth variety. Latest quotations follow:

(Prices Net at the Mill)

CORD				
Peeler, carded, 23/4/3	lb.	.22	@	.22½
Peeler, carded, 23/5/3	lb.	.21	@	.21¼
Peeler, carded, 13/3/3	lb.	.18	@	.18¼
Peeler, carded, 15/3/3	lb.	.19	@	.19¼
Egyptian, carded, 23/5/3	lb.	.34½	@	.35
Egyptian, combed, 23/5/3	lb.	.39½	@	.40
CHAFERS				
Carded, American, 8 oz.	lb.	.18	@	.18½
Carded, American, 10 oz.	lb.	.18	@	.18½
Carded, American, 12 oz.	lb.	.18	@	.18½
Carded, American, 14 oz.	lb.	.17¼	@	.18
LENO BREAKER				
Carded, American, 8¼ oz.	lb.	.18	@	.21
Carded, American, 10¼ oz.	lb.	.18	@	.21
SQUARE WOVEN				
Carded, American, 17¼ oz. 28-11 ply	lb.	.21	@	.21¼
Carded, American, 17¼ oz. 10-5 ply	lb.	.17	@	.17½

Sheetings

Prices on the leading sheeting constructions have not changed during the last two weeks and the market has remained extremely dull. Late prices follow:

40 inch, 2.50 yard	yd.	—	@	.05⅛
40 inch, 2.85 yard	yd.	.04⅝	@	.04½
40 inch, 3.15 yard	yd.	—	@	.04¾
40 inch, 3.60 yard	yd.	.04¼	@	.04⅝
40 inch, 3.75 yard	yd.	.03⅝	@	.03½
40 inch, 4.25 yard	yd.	.03¼	@	.03⅜

Ducks

No change in price levels for standard duck constructions have been reported for the last fortnight. Quotations covering the grades most popular to the rubber industry are given as follows:

Enameling	lb.	.18	@	.22
Belting and Hose	lb.	.19	@	.20
Single filling	lb.	.07¼	@	.07¾
Double filling	lb.	.09½	@	.10

Closing Prices on Rubber Exchange of New York, Inc.

No 1 Standard Contract of 10 Tons*

FROM JANUARY 5 TO JANUARY 19, 1933

Date	Spot	Jan.	Feb.	Mar.	April	Sales
Jan. 5	3.18	3.18	3.22	3.26	3.30	32
6	3.20	3.20	3.24	3.28	3.22	69
7	——	——	——	——	——	—
8	——	——	——	——	——	—
9	3.25	3.23	3.27	3.31	3.35	24
10	3.17	3.15	3.21	3.27	3.31	23
11	3.15	3.13	3.17	3.22	3.26	13
12	3.09	3.07	3.11	3.15	3.18	52
13	3.03	3.05	3.09	3.13	3.16	48
14	3.03	3.00	3.04	3.08	3.12	14
15	——	——	——	——	——	—
16	2.97	2.93	2.97	3.02	3.05	36
17	2.91	2.85	2.90	2.96	2.99	57
18						
19						

*This contract will be superseded by "No. 1 B Standard" on April 1, 1933

CHEMICALS

ALTHOUGH production schedules are expected to increase the rate of production was low in January with a resulting disappointing shipment of compounding materials. In general, the chemical price level has been steady with only several changes being made in some of the pine softeners to meet recent declines. A new solvent, Dipentene, has been added. Quotations follow:

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.42 @	.46
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
A-32	lb.	.90 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.67
Altax	lb.		
Captax	lb		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.43
Diphenylguanidine	lb.	.33 @	.34
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.42
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.46 @	.47
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.37½@	.40
Monex	lb.	2.25 @	—
Oxynone	lb.	.68 @	.80
Phenex	lb.	.50 @	.55
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R-2	lb.	1.95 @	2.15
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Thiocarbanilid, drums	lb.	.25 @	.27
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Litharge, domestic	lb.	.05¾@	—
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)

Blues			
Prussian	lb.	.36 @	.37
Ultramarine	lb.	.06 @	.30
Browns			
Sienna, Italian	lb.	.04 @	.08
Umber, Turkey	lb.	.04 @	.06
Greens			
Chrome, light	lb.	.23 @	.26
medium	lb.	.26 @	.28
dark	lb.	.28 @	.33
Chromium Oxide, bbl.	lb.	.23 @	.27
Reds			
Antimony			
crimson, 15/7	lb.	.40 @	—
sulfur, free	lb.	.52 @	.56
Indian English	lb.	.09 @	.10
Domestic (Maroon)	lb.	.11 @	—
Red oxide, pure	lb.	.10 @	.12
Rub-Er-Red, f.o.b Easton	lb.	.03¾@	—
Whites			
Lithopone, Albalith	lb.	.04¼@	.04¾
Lithopone, Azolith	lb.	.04¼@	.04¾
Titanium oxide	lb.	.17 @	.19
Titanox B	lb.	.06 @	.06½
Titanox C	lb.	.06 @	.06½
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.05¾@	.06
ZZ (leaded)	lb.	.05½@	.05¾
Horsehead Lead Free Brand:			
Selected	lb.	.05¾@	.06
Special	lb.	.05¾@	.06
XX Red	lb.	.05¾@	.06
XX	lb.	.05¾@	.06
XX Green	lb.	.05¾@	.06
Leaded Brand, Standard	lb.	.05½@	.05¾
Sterling	lb.	.05½@	.05¾
Superior	lb.	.05½@	.05¾
Lehigh	lb.	.05¼@	.05½
U. S. P., bbls.	lb.	— @	.12¾
Kadox, black label	lb.	.09¾@	.09⅞
Blue label	lb.	.08⅝@	.08⅞
Red label	lb.	.07¼@	.07½
Cryptone, No. 19	lb.	.06½@	.06¾
Cryptone CB, No. 21	lb.	.06½@	.06¾
XX Zinc Sulphide, bbls.	lb.	— @	.13
St. Joe, black label	lb.	.05¾@	.06
green label	lb.	.05¾@	.06
red label	lb.	.05¾@	.06
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.05¾@	.06
Anaconda, selected lead free	lb.	.06¼@	.06½
Florence White seal, bbls.	lb.	— @	.10⅞
Green seal	lb.	.09¾@	.09⅞
Red seal	lb.	.08¾@	.08⅞
Yellows			
Chrome	lb.	.16 @	.16½
Ocher, dom. med.	lb.	.01½@	.02

BLACKS

Arrow "Aerfloted"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
Arrow "Aerfloted" Specification, c.l. f.o.b. wks., bags	lb.	.03 @	—
Bone, powdered	lb.	.05½@	.12½
Carbon, compressed	lb.	.02¾@	.07
uncompressed	lb.	.02¾@	.07
"Certified," Cabot			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
Spherons	lb.	.02¾@	—
"Disperso" f.o.b. La.	lb.	.028 @	.071
f.o.b. Texas	lb.	.02¾@	.07
Drop, bbls.	lb.	.05½@	.14
"Excello," compressed	lb.	.03 @	—
"Fumonex"	lb.	.02½@	.06
"Gastex"	lb.	.02½@	.06
Lampblack	lb.	.06 @	.08
"Micronex"			
c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. works, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05½@	.07
"Supreme"	lb.	.02¾@	—
Thermatomic—"P 33"	lb.	—	—
"Thermax"	lb.	—	—
United, "Dixie" and "Kosmos"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Velvetex"	lb.	.02 @	.05

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate, lump	lb.	.10½@	.12
Asbestine	ton	13.40 @	14.00
Barium carbonate (98-100%)	lb.	.05 @	—
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	33.00 @	—
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03
Blanc fixe dry f.o.b. works	ton	60.00 @	75.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk, precipitated			
Suprex white, extra lt.	ton	60.00 @	70.00
heavy	ton	45.00 @	55.00
Clay, Kaolin, domestic	ton	6.00 @	7.00
Aerfloted, Suprex	ton	6.50 @	8.00
Congaree	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	10.00 @	22.00
Par	ton		
Tensulite		15.00 @	—
Cotton Flock	lb.	.08 @	.16
Glues, extra white	lb.	.15 @	.22
medium white	lb.	.12 @	.14
Kalite No. 1	ton	30.00 @	55.00
Kalite No. 3	ton	40.00 @	65.00
Magnesia, carbonate	lb.	.05¾@	.06
Mica	lb.	.04 @	—
Rottonstone (powdered)	ton	23.50 @	28.00
Soapstone, powdered	ton	16.00 @	18.00
Starch, powdered	cwt.	2.34 @	—
Talc, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	.85 @	1.10
English cliffstone	cwt.	1.50 @	1.70
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.10½@	—
Zinc Stearate	lb.	.20½@	—

MINERAL RUBBER

Genasco (factory	ton	40.00 @	42.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Parmr, solid	ton	23.00 @	28.00
Pioneer, MR, sclid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00
R & H Hydro-Carbon	ton	27.05 @	29.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	— @	.26½
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.08 @	.12
Stearic, double pressed	lb.	.08 @	.12
Alkalies			
Caustic soda, 76%	cwt.	2.50 @	2.90
Soda Ash, 58% C.L.	cwt.	1.15 @	1.17½
Oils			
Corn, refined, bbls.	lb.	.05½@	.06
Cottonseed, crude		.03½@	.04
Degras (c.l. 100 bbls.)	lb.	.02¾@	—
Less c.l. (10-25 bbls.)	lb.	.03 @	—
Lots less than 10 bbls.	lb.	.03½@	—
Fluxrite	lb.	.05½@	.06¼
Palm Lagos	lb.	.03¼@	.03½
Niger	lb.	.02¾@	.03
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.03 @	.03½
Pigmentaroil	gal.	.13 @	.18
Pine, steam distilled	gal.	.59 @	.61
destructively distilled	gal.	.56 @	.58
Witco Palm Oil	lb.	.07½@	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.05 @	.06
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt. bbl.		6.00 @	—
Rosin, grade K, 280 lb. bbl.		4.35 @	—
Pigmentar	gal.	.13 @	.18
Tar Retort, 50 gal.	bbl.	10.00 @	11.00
Solvents			
Acetone, pure	lb.	.10 @	.13
Alcohol, denatured, No. 1 bbls.	gal.	.30½@	.45½
Benzol, 90%	gal.	.20 @	.21
Carbon, bisulfide	lb.	.05½@	.06¼
Carbon, tetrachloride	lb.	.06¼@	.07
Dipentene	gal.	.31 @	.41
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.26 @	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Turpentine, spirits	gal.	.45¼@	—
wood	gal.	— @	.40
destructively distilled	gal.	.35 @	—
Waxes			
Beeswax, white	lb.	.30 @	.32
Carnauba	lb.	.25 @	.26
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.05 @	.06
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02 @	—
White crude scale 124/126	lb.	.02 @	—
Refined, 125/127	lb.	.02¾@	—
Refined, 128/130	lb.	.03¼@	—
Refined, 135/137	lb.	.04 @	—
Refined, 138/140	lb.	.06¾@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Retardex	lb.	.35 @	.40
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.60

SPECIALTIES

Aromatics- Rodo	lb.		
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.56 @	.60

SUBSTITUTES

Black	lb.	.06 @	.08
White	lb.	.08 @	.12
Brown	lb.	.07 @	.11

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.04 @	—
Sulfur flour,			
Ref'n'd. 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Telloy	lb		
Vandex	lb		